

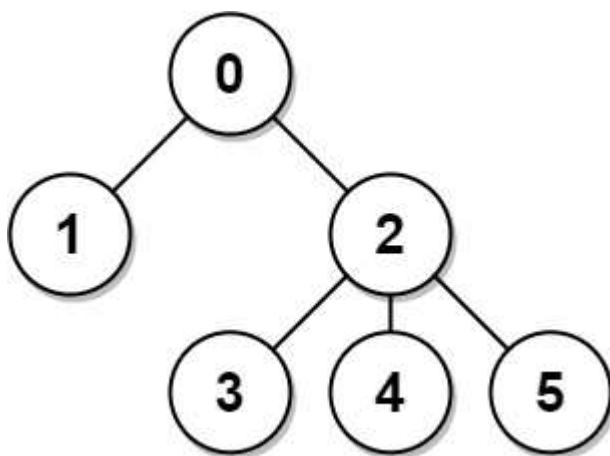
Sum of Distances in Tree [\(View\)](#)

There is an undirected connected tree with n nodes labeled from 0 to $n - 1$ and $n - 1$ edges.

You are given the integer n and the array `edges` where `edges[i] = [a, b]` indicates that there is an edge between nodes a and b in the tree.

Return an array `answer` of length n where `answer[i]` is the sum of the distances between the i^{th} node in the tree and all other nodes.

Example 1:



Input: $n = 6$, `edges = [[0,1],[0,2],[2,3],[2,4],[2,5]]`

Output: `[8,12,6,10,10,10]`

Explanation: The tree is shown above.

We can see that $\text{dist}(0,1) + \text{dist}(0,2) + \text{dist}(0,3) + \text{dist}(0,4) + \text{dist}(0,5)$ equals $1 + 1 + 2 + 2 + 2 = 8$.

Hence, `answer[0] = 8`, and so on.

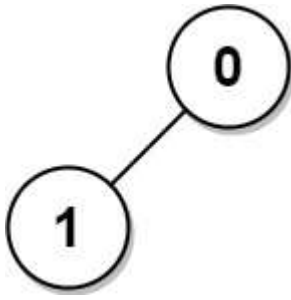
Example 2:



Input: $n = 1$, `edges = []`

Output: `[0]`

Example 3:



Input: $n = 2$, $\text{edges} = [[1,0]]$

Output: $[1,1]$

Constraints:

- $1 \leq n \leq 3 \cdot 10^4$
- $\text{edges.length} == n - 1$
- $\text{edges}[i].\text{length} == 2$
- $0 \leq a_i, b_i < n$
- $a_i \neq b_i$
- The given input represents a valid tree.